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John Moyes

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EXAMINER

RUMP, RICHARD M

ART UNIT

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1793

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/541,149	<b>Applicant(s)</b> MOYES ET AL.	
	<b>Examiner</b> Richard M. Rump	<b>Art Unit</b> 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                   | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)             | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1: 09/25/2006 2: 12/12/2006 3: 4/12/2007 4: 07/26/2007 5: 08/16/2007.</u> | 6) <input type="checkbox"/> Other: ____.                          |



## **DETAILED ACTION**

### ***Status of Application***

Claims 1-39 are pending and presented for examination.

### ***Priority***

Acknowledgement is made of applicant's request for foreign priority under 35 U.S.C. §119(a)-(d). Certified copies of the priority documents have been **received**.

### ***Information Disclosure Statement***

The information disclosure statements (IDS) submitted on 25 September 2006, 12 December 2006, 12 April 2007, 26 July 2007 and 16 August 2007 are acknowledged and the references listed thereon have been considered by the examiner on the attached copies of the PTO-1449 forms.

### ***Claim Objections***

Claim 33 is objected to because of the following informalities: It is missing a space between '29' and 'wherein'. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 3-18, 28, 36-38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The metes and bounds of the term 'high carbon' could not be determined as it is unknown in reference to what the carbon is high.

In claim 1, 'the metal halide' lacks antecedent.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 1-4, 7, 11-12, 15-16 rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 2835569 to Reynaud (Cited in IDS).**

Regarding claims 1-4, 7, Reynaud discloses a process wherein 4000 kg of roasted speiss containing 39% Co, 4% Ni, 15% As, 15% Fe and 40g of gold/1000kg was mixed with hydrochloric acid to form a slurry (column 5, lines 43-50). After one hour, sodium chlorate (column 5, line 53) is added. The material was then passed through two layers of activated carbon (column 6, line 8) to separate out the residue gold. Iron arsenate (precipitated arsenic) is also produced (column 6, line 14). The sodium chlorate is inherently acting as a multi-valent species during the oxidation given

the potentials recited in example 1 of Reynaud. A similar process is outlined in example 2. Recovery is inherently in-line.

Regarding claims 11-12, example 2 discloses a finely crushed pyritic material (smaltine) undergoing treatment with sulphuric acid and arsenious acid. The ferric arsenate is separated out (column 10, line 55) and gold is solubilised (column 10, line 59). Example 1 discloses a pyritic material (speiss) undergoing a first leaching step with sodium chlorate which is diluted for a second pass resulting in eventually as stated above a gold precipitate and a ferric arsenate precipitate (As such pH control is implied).

Regarding claim 15, given the solid-liquid separation employed by Reynaud, a conditioning stage by the usage of lime and calcium carbonate to wrought ferric sulfate is performed (column 3, line 60).

**Claims 19-27, 29-35 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 4878495 to Raudsepp (Cited in IDS).**

Regarding claims 19, Raudsepp discloses a process wherein gold, silver or iron is removed from a sulfidic pyrite (abstract). The pyrite is decomposed by an oxidation-reduction reaction in an acidic solution (nitric acid as shown in example 1), thus soluble ferric iron species are wrought (column 6, lines 40-43). A solid-liquid reaction may then be employed to remove the solid residue from the liquid fraction which will usually wrought gold (column 5, lines 44-51 -- Activated carbon may also be used to separate) The reduced nitric oxide may be regenerated via an oxidant as shown in column 8, lines 20-27.

Regarding claim 20, if one stops at the production of soluble ferric iron species, the pH is only controlled for the pyrite solution as such meeting the general conditions of claim 20.

Regarding claims 23-27 and 35, the entire reaction is typically done between 60 and 119 °C (example 2 discloses 1 discloses 60 °C), claim 1 of Raudsepp effectively summarises the instantly claimed processing parameters. The pyritic solution is denitred and the treated concentrate wrought from this is separated by solid-liquid separation, of which the liquid portion is re-added to the dinitration step. The solids are moved to a common volume space and oxidized again. As such, the first stage would oxidize the gold or ion species out and then the second oxidization step is used to remove it from the solid slurry. The pH can go below 1 for this second step (column 6, lines 30-35).

Regarding claims 29-34, metal recover would be inherent to wrought final metal products. Furthermore, column 2, line 65 bridging column 3, line 2) discloses that the metal and pre-metal (which would read on recovery prior to the contaminant precipitation is removed) is recovered. Recovery by roasting can be envisaged as it is the most commonly used means to recover metals after final separation (any remaining oxide species would be burned away). The liquid fraction is re-introduced into the dinitration step (column 3, lines 55-56).

**Claim 39 is rejected under 35 U.S.C. 102(b) as being anticipated by any/all of the preceding references.**

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Regarding claim 39, all of the above rejections result in the production of gold values as such a metal is recovered and meets the broadest reasonable interpretation of instant claim 39.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1-3, 7 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 4097271 to Swinkels (Cited in IDS).**

Regarding claims 1-3 and 7, Swinkels discloses a process for recovering a precious metal (copper, iron, gold, etc; column 2, lines 41-43) from a sulfidic material (copper sulfide or iron sulfide) by preparing an aqueous leach solution of cuprous chloride, ferrous chloride, etc., containing gold (as the aqueous halide solution and to act as a multi-valent species as shown in equations I and II; column 4, lines 5-13). The material is then added to the leaching solution (column 4, lines 42-61) and then separated from the solids (column 4, lines 65-67). Furthermore, a gold extraction process is shown in column 9, lines 21-47. While Swinkels is silent to the usage of any acid, a skilled artisan would attempt to perform the process with any acid to digest the ore absent evidence to the contrary.



Regarding claim 11, Swinkels discloses a sulfidic material oxidization step comprising a leaching step (column 9, lines 21-47). The pyrite (column 9, line 7) is oxidized and the gold is solubilised simultaneously. The same rationale as above is used, however for the instances of gold recovery, the remaining solid residue is leached with a ferric chloride solution (column 9, line 22).

**Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Reynaud in view of either Swinkels.**

Regarding claim 5, Reynaud is silent to the usage of cyanide species to aid in separation. However, Swinkels suggests the usage of cyanide in the aqueous or solid separation (recovery) stage. It would have been obvious to one having an ordinary level of skill in the art at the time of invention to perform the recover with activated carbon of Reynaud in view of the addition of cyanide of Swinkels. The teaching or suggested motivation in doing so is that cyanide aids in the extraction process by extracting up to 90% of the gold. Furthermore in event of *arguendo*, cyanide is a well known addition to any gold extraction process as such a skilled artisan would first attempt its usage absent evidence to the contrary.

**Claims 8-10 and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reynaud.**

Regarding claims 8-10, these are obvious as routine optimization of concentration/parameters to achieve the desired effects. (In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955)). This is commonly done in order to control the rate of oxidation.

Regarding claims 13-14, in the hydrometallurgical arts the usage of Pourbaix reactions (control of Eh-pH) is commonly performed by skilled artisans in order to control the type and amount of materials leached out in order to not leach out any unwanted species. The temperature condition is met as per the *supra* 102 rejection's rationale. Furthermore, the general conditions of 60 to 110°C (Specifically 60 as discussed *supra*) are disclosed and this overlaps the claimed range, as such a *prima facie* case of obviousness exists (See MPEP 2144.05).

**Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reynaud as applied to claim 1 above, and further in view of Adams, "Characterization and Blinding of Carbonaceous Preg-Robbers in Gold Ores" (Provided by Applicant).**

Regarding claims 17 & 18, Reynaud is silent as to the usage of a surfactant to remove any extra carbon, also Reynaud is silent as to the carbon content of the ore however there would be some carbon content and given the indefiniteness of 'high carbon' as stated above, the Examiner is construing this to be any level of carbon which inherently the ore would have. Given cyanide's poisonous nature, it would be obvious to a skilled artisan after complexing it with gold to safely remove it from the carbonaceous filter material. Commonly, kerosene or other hydrocarbons are used for this depending on its ioicity, water solubility, molecular weight, etc. Adams which details with removing gold from a pyretic ore discloses the usage of numerous surfactants, including kerosene to assist in the removal of gold from carbonaceous filters (Pages 3-5). It would have been obvious to a skilled artisan to perform the process of Reynaud with the usage of a

surfactant, such as kerosene in view of Adams as the process of Adams is traditionally done (Page 6, second paragraph of Adams).

**Claims 21-22 and 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Raudsepp as applied to claim 19 or alternatively claim 20 above, and further in view of Adams, “Characterization and Blinding of Carbonaceous Preg-Robbers in Gold Ores” (Provided by Applicant).**

Regarding claims 21-22, the process of Raudsepp can be conducted at a pH of about 3.0 if removing silver (column 6, lines 27-30). The precipitation (solid-liquid separation stage) would obviously contain some oxide species. In event of *arguendo*, a skilled artisan would use oxidation to remove unwanted species by reduction and subsequent separation.

Regarding claim 28, the same rationale as used for claims 17-18 would apply over the Raudsepp rejections with the exception that carbonaceous filtering is not used and that also in this case the kerosene is what the gold-cyanide complex is bonding to, not to the inherent amounts of carbon in the ore.

***Claim Rejections - 35 USC § 102/103***

**Claims 36-38 are rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US Patent No. 5827348 to Waddell.**

Regarding claims 36-37, Waddell discloses a method of leaching precious metals from a precious metal ore by mixing the ore with an aqueous solution comprising a

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cyanide ion and a fluorolipathic surfactant (phenol) to reduce the solution and then extract it from the cyanide complex resulting in a precious metal (claim 1). The surfactant acts as a blinding agent as the surfactant is hydrophobic and as is the carbon. As such the surfactant will allow for the removal of the carbon from the precious metal and preventing adsorption thereon similar to the well known usage of surfactants to clean up oil spills or other carbon removal techniques involving surfactants. Overall the process is substantially similar to that of instant claim 19.

### ***Conclusion***

Claims 1-39 have been rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard M. Rump whose telephone number is (571)270-5848. The examiner can normally be reached Monday through Friday 7:00 AM-4:30 PM EDT.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached at (571)272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/R. M. R./  
Examiner, Art Unit 1793

/Stuart Hendrickson/  
Primary Examiner, Art Unit 1793